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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HU, HENRY S

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,657	Applicant(s) OHASHI ET AL.	
	Examiner HENRY S. HU	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Election of January 9, 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to **Election** along with its **Pre-Amendment** filed on January 9, 2009, which is in response to restriction requirement filed on December 17, 2008. Applicants have elected **Group I, Claims 1-2 and 4-6** along with cancellation of non-elected Claims 7-15 (Groups II-V). With pre-amendment, **Claim 1 is amended; Claim 3 and non-elected Claims 7-15 (Groups II-V) are all cancelled, while no new claim is added.** To be specific, parent Claim 1 is amended only to incorporate the limitations from Claim 3 for the specified ethylenic polymer moiety M. Dependent Claim 3 is cancelled accordingly.
2. Applicants' **three Pre-Amendments** and **one IDS** (1 page) have been filed so far. This Application is a **371/PCT/JP04/007179** with a Japanese priority at June 5, 2003. **Claims 1-2 and 4-6** with only **one** independent claim (Claim 1) are pending now. An action follows. (See international search report on Applicants' priority paper **WO 2004/108772 A1 to Ohashi et al.**)

Claim Objections

3. **Claim 1 is objected to** because of the following informalities:
 - (a) On **Claim 1** from page 2 at the end to page 3, the statement regarding the definition for "**ethylenic polymer moiety M**" may be confusing. Rewriting with more clarification is necessary.

(b) On **Claim 1** at the end, the formula (3) for ethylenic polymer moiety M may have a typographical error. When moiety M is covalently connected with moiety A or B, it is unclear **whether formula (3) is for an ester (-COO-) or for a ketone (-CO-)**. Examiner believes it is an ester (acrylate or methacrylate) type monomer for formula (3), while formula (2) is for traditional vinyl ether type monomer. Rewriting with more clarification is also necessary.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The limitation of parent **Claim 1** in present invention relates to **a curable surface modifier comprising a curable fluorine-containing resin (I) which is soluble in general purpose solvents. The resin (I) comprises a fluorine-containing ethylenic polymer (IAB) having a moiety A and a moiety B in at least a part of the same side chain or different side chains thereof,**

or the resin (I) comprises a fluorine-containing ethylenic polymer (IA) having a moiety A in at least a part of its side chain and a fluorine-containing ethylenic polymer (IB) having a moiety B in at least a part of its side chain,

wherein the moiety A has, at its end, one or two or more polyfluoro-polyether chains P represented by the formula (1).

*Wherein the moiety B has one or more self-crosslinkable functional groups Y at its end, and the remaining **ethylenic polymer moiety M** (which is excluding the moiety A and the moiety B) contains a structural unit of the formula (2) or (3) as specified.*

*See other limitations of dependent **Claims 2 and 4-6**.*

6. **Claims 1-2 and 4-6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Ohmori et al.** (US 5,021,527 or its EP 333,083 A2).

Regarding “**curable surface modifier (which is a composition)**” of parent **Claim 1**, the “solvent-soluble” **polymer (resin IAB) or polymer blend mixture (resin IA and Resin IB)** will comprise **three** “moieties” including: (a) **moiety A** which has the structure of **polyfluoropolyether P (wherein X¹ may be H, F or Cl)**, (b) **moiety B** (which is a crosslinkable functional group), and (c) ethylenic polymer **moiety M** (to be connected with moiety A or moiety B as a pendent group in polymer structure).

7. In a very close examination, the surface modifier fluoropolymer can be summarized as follows: (1): **Since X¹ may be F atom, the traditional perfluoropolyether PFPE group is thereby within the scope of moiety A.** (2): As discussed in above-mentioned claim objection at (b), monomers may include vinyl ether and acrylate (and the like methacrylate) when the

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ethylenic polymer moiety M is covalently connected with moiety A or moiety B. (3): According to the art, any organic functional group (as long as it can be reacted) can be treated as moiety B.

8. **Ohmori** et al. in US and also its equivalent EP patents has prepared some **“solvent-soluble” (column 6, line 33-35) and “curable” fluorocopolymers** for making water- and oil-repellent compositions, which will eventually exhibit good adhesion to the articles to be surface-treated when it is cured (see column 7, line 23-40). Ohmori’s fluorocopolymers comprise fundamentally the same claimed **three moieties (A), (B) and (M)**.

9. **For the use of moiety A and moiety M**, see fluorinated acrylate or methacrylate monomers (with formula (1)) used in columns 1-5; particularly see **perfluoropolyether (PFPE) group** as shown in column 2, line 25-43 with some lengths are reading on the claimed **polyfluoropolyether P** (which requires $n1+n2+n3+n4 = \underline{7-40}$).

10. **For the use of moiety B and moiety M**, see functional group-containing acrylate or methacrylate monomers in column 4, line 41-51, which are crosslinkable. The functional groups may include epoxy and carbon-carbon double bond, which are reading on the claimed “Y” limitation on dependent Claim 4.

11. It is noted that open language **“comprising”** is applied to the polymer’s moiety of parent Claim 1. It is also noted that **molar ratio among the claimed three moieties A, B and M are**

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not included at all in parent Claim 1. Therefore, Ohmori clearly anticipates the current limitation of parent Claim 1.

12. Regarding **Claim 2**, Ohmori's disclosure on column 10, line 23-26 would read on the **fluorine content** in the solution of Claim 2.

Regarding **Claim 4**, various types of functional group-containing acrylate monomers have been used by Ohmori. See column 4, line 41-51, they are either crosslinkable or self-crosslinkable according to the art. The functional groups include epoxy and carbon-carbon double bond, which are exactly reading on the “**Y**” limitation on dependent Claim 4.

Regarding **Claim 5**, Ohmori has prepared some “solvent-soluble” (column 6, line 33-35) and “curable” fluorine-containing copolymers for making water-repellent/oil-repellent compositions, which will eventually exhibit good adhesion to the articles to be surface-treated when it is cured (see column 7, line 23-40).

Regarding **Claim 6**, the issue of “**inherent property**” can be directly applied to have the same or at least similar **antireflection** effect on Claim 6.

Conclusion

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13. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a curable surface modifier comprising a curable fluorine-containing resin (I), which comprises a fluorine-containing ethylenic polymer (IAB) or comprises a fluorine-containing ethylenic polymer (IA) and a crosslinkable fluorine-containing ethylenic polymer (IB) as specified:

US 6,906,115 B2 to Hanazawa et al. has disclosed the preparation of some PFPE-containing compositions for surface treatment. The composition comprises: (A) **a trisocyanate**, (B) **a perfluoropolyether “compound” having at least one active hydrogen**, and (C) **a monomer having active hydrogen and a carbon-carbon double bond**. Based on the fact that component (B) is only a compound and thereby not a monomer, Hanazawa's resulting polymer cannot read on the limitation of parent Claim 1.

14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Vasu Jagannathan, can be reached on (571) 272-1119. The **fax** number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/
Primary Examiner, Art Unit 1796

/Henry S. Hu/
Examiner, Art Unit 1796

March 4, 2009